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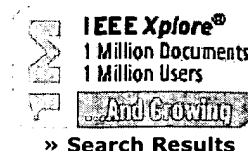
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1-30 of 43

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Bristol, England - SGS-Thomson Microelectronics (STM) is pursuing the possibility of accelerating the Java language on both its 486 and ST20 RISC processors. The 486 is intended to let STM address the market for network computers, while the ST20 would target embedded applications such as set-top boxes, mobile phones, smart phones and personal digital assistants-areas where Java may become significant.

According to an STM spokesperson, a design team in Phoenix-the company's major site for the manufacture of X86 processors-is working with a number of customers on an ASIC cell that will be an accelerator for the Java virtual processor on the X86. The cell is expected to become available in the second quarter of 1997.

In essence, the coprocessor looks for those operations in Java that require a lot of CPU cycles and seeks to accelerate those.

At the same time, Bristol-based engineer Stuart Menefy is preparing a technical paper called "Efficient Implementation of Java on the ST20" for presentation at Emsys '96. Emsys is a technical conference being organized by the Open Microprocessor systems Initiative, a cluster of projects within the European Esprit collaborative R&D program. It will take place in Berlin Sept. 23 to 25. The paper compares the processing needs of Java to the capabilities of the ST20 and concludes the combination should be effective.

Nick Dunn, the STM manager responsible for the combination of Java and the ST20 within the programmable-products group, declined to comment on the status of the project.

0.35-micron process

The Java-oriented accelerator IC will use STM's 0.35-micron, five-layer-metal CMOS process. It is expected that the accelerator will allow the processing of Java programs at a speed comparable with full-featured desktop PCs, while allowing the design and manufacture of low-cost network computers.

Daniel Quesyssac, vice president responsible for STM's new ventures group, commented:"SGS-Thomson is already a major supplier of ICs for high-end computing, based on current-generation PCs, including multimedia machines. However, we do recognize the

emergence of a promising new market: the market for application-specific computing based on low-cost network computers and the Java language for Internet applications. We have all the basic ingredients to design and build a VLSI device, such as the Java hardware accelerator, and to further integrate it into a single-chip computer later on."

STM has already developed a semicustom 486 for Sichuan Ding Tian Microelectronics Co. Ltd. (Chengdu, Sichuan, China) for use in China's Multimedia Home System (MHS). The 486 core is part of a two-chip set, which includes 486DX2/4 core, a UMA chip set, an SVGA graphics engine, a DRAM controller, a PAL/NTSC encoder and an MPEG-2 decoder. It will be used as the basis for a home PC and entertainment system being designed and manufactured by Ding Tian.

Commenting on the development, Chen Ya Ping, general manager of Ding Tian, said: "The MHS project was identified as one of 52 heavyweight technological programs by the Chinese authorities, and it is the only selection in the multimedia PC area." Later, STM expects to integrate the chips into one, to which the Java accelerator could be added.

The spokesman said: "We believe such a cell is not absolutely necessary to run Java, because it {Java} is being integrated into operating systems and because it is like the C language and can be compiled 'on-the-fly'. The speed at which we develop this coprocessor will depend on what applications emerge for Java machines and the level of performance they need."

Similarly, a processor such as the ST20450 could run Java directly but could also take advantage of the accelerator-core development. "The nature of Java means it would be fairly easy to create an ST20 version of that core. But the design work has only just started, so that it can be available in the first half of 1997."

The set-top box, which could evolve into both a modem-connected network computer and a digital-TV receiver, is one place where Java could become significant. The ST20 is designed onto a number of set-top boxes. The spokesperson said: "Java's so new that people have not come up with all the applications for it."

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